



UNITED STATES PATENT AND TRADEMARK OFFICE

H/A

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/651,115

08/28/2003

Keith D. Mease

TN285

7863

7590
Unisys Corporation
Attn: Lise A. Rode
Unisys Way, MS/E8-114
Blue Bell, PA 19424-0001

06/19/2007

EXAMINER

PAPE, ZACHARY

ART UNIT

PAPER NUMBER

2835

MAIL DATE

DELIVERY MODE

06/19/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/651,115

Applicant(s)

MEASE ET AL.

Examiner

Zachary M. Pape

Art Unit

2835

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6, 7 and 9-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7 and 9-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The following detailed action is in response to the correspondence filed 4/26/2007.

Claim Objections

1. Claims 14 and 18 objected to because of the following informalities:

Claim 14, in lines 2-3 recites, "the heat-generating component" which lacks antecedent basis since both claim 14 and claim 10 recite "a heat-generating component". For the purposes of examination, "the heat-generating component" will be considered to be the heat-generating component attached to the circuit card.

Claim 18, in Line 6 recites, "a heat-generating component" when the preamble recites, "one or more heat-generating components".

Appropriate correction is required.

Specification

2. The disclosure is objected to because of the following informalities:

Method claims 10 and 21 recite, "abutting a surface of the heat sink disposed opposite the fins against a heat generating component" which is not described in the specification (See Page 6, Lines 13-21).

Appropriate correction is required.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. **Therefore, the step of “abutting a surface of the heat sink disposed opposite the fins against a heat generating component” as in claim 10 and 21 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.**

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

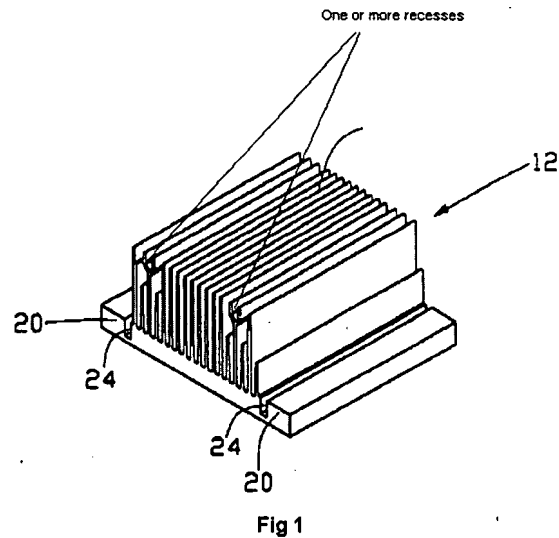
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 15 is rejected under 35 U.S.C. 102(b) as being anticipated by Lo (US 6,360,812).

With respect to claim 15, Lo further teaches a circuit board assembly comprising: a circuit board (80); a heat generating component mounted on said circuit board (Col: 2, Line 19); and a heat sink (12) thermally coupled to said heat generating component (Col: 2, Lines 18-20), the heat sink having a base (Bottom portion of 12) abutting the heat generating component and a plurality of fins (See Lo Fig 1) disposed on a surface of the base opposite the heat-generating component for dissipating heat, the plurality of fins having faces parallel to one another (See Lo Fig 1), said parallel faces of the fins defining a recess (See POA Fig 1 below) for supporting and guiding an edge of a circuit card, said recess extending parallel to the base and at least partially defined by at least one of said fins and by surfaces extending along a length of the fins parallel to the base (See Lo Fig 1), the recess having a depth smaller than the height of said fins (See Lo Fig 1).

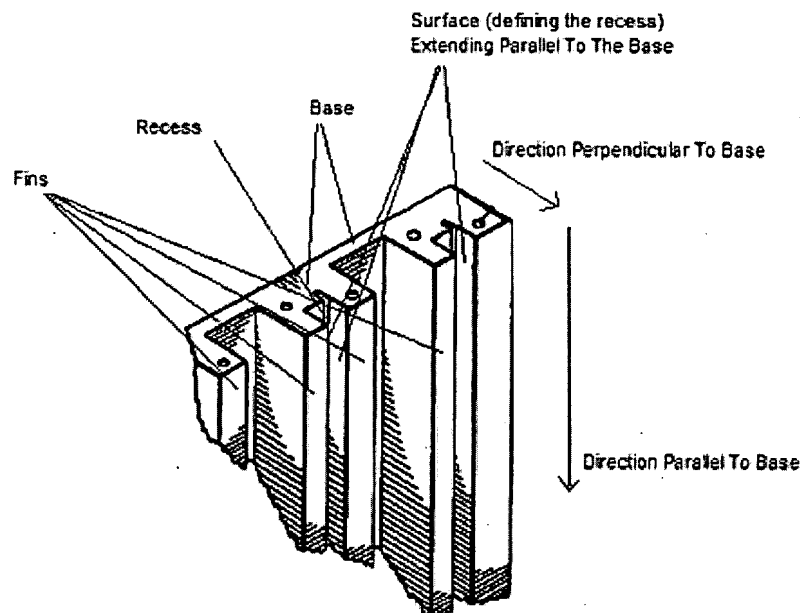


Claims 1-4, 6-7, 9, 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Hughes et al. (US 5,883,784).

With respect to claim 1, Hughes et al. teaches a heat sink (10) configured to support an edge (82) of a circuit card (80), said heat sink comprising: a thermally conductive base (See present office action Fig 2 below); a plurality of thermally conductive heat dissipating fins (See POA Fig 2 below), extending perpendicularly from said base each fin having a length extending parallel to the base; and one or more recesses (16), each recess at least partially defined by adjacent parallel faces of two adjacent fins extending perpendicularly from said base, the recesses being defined in part by surfaces extending along the length of the fins parallel to the base, having a depth smaller than the height of said fins (See Fig 2, POA Fig 2 below), and being configured to support the edge of a circuit card (Column 3, Lines 55-57); and a face of the base disposed opposite said fins, said base being configured to be mounted with said face abutting a heat-generating component (See POA Fig 2 below, [it has been

Art Unit: 2835

held that the recitation that an element is "configured to" perform a function is not a positive limitation but only requires the ability to so perform and is therefore given little patentable weight. In *re Hutchison*, 69 USPQ 138.], wherein the base is configured to be mounted with the face abutting a heat-generating component).

**Fig 2**

With respect to claim 2, even though the claims are limited and defined by the recited process, the determination of patentability of the product is based on the product itself, and does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985).

With respect to claim 3, Hughes et al. further teaches that the one or more recesses (16) are further configured to support the edge (82) of the circuit card (80) in sliding association with said heat sink (See Hughes et al. Fig 6).

With respect to claim 4, Hughes et al. further teaches that the recess (16) is a slot configured to guide the edge (82) of the circuit card (80) during sliding movement of the circuit card (See Fig 6).

With respect to claim 6, Hughes et al. further teaches each of said one or more recesses is further defined by said base (See POA Fig 2 above which details how the base rises perpendicularly to at least partially define the recess).

With respect to claim 7, Hughes et al. further teaches said recess is defined by a plurality of said fins.

With respect to claim 9, Hughes et al. further teaches that the fins (See POA Fig 2 above) are oriented substantially parallel to one another (See Hughes Figs 1 and 2).

With respect to claim 18, Hughes et al. further teaches a heat sink (10) guiding one or more circuit cards (80) and transferring heat from one or more heat-generating components (Column 3, Line 62 – Column 4, Line 3), said heat sink comprising: a first surface (Base as illustrated in POA Fig 2 above) defining one or more slots (16) configured to guide an edge of a circuit card; a second surface (Adjacent 14) opposite the first surface, the second surface being configured to abut a heat-generating component; and heat dissipating fins (See POA Fig 2 above, also 14) thermally coupled to said first surface, said one or more slots at least partially defined by two adjacent parallel faces of said fins (See POA Fig 2 above), said one or more slots (16) being

defined in part by a portion of said first surface extending parallel to the base (See POA Fig 2 above), said slot having a depth smaller than the height of said fins (See Hughes Fig 2), said heat sink being configured to provide a thermal path from the heat-generating component to said fins via said second surface (Column 3, Lines 62 – Column 4, Line 3).

With respect to claim 19, Hughes et al. further teaches a surface (Flat faces of element 14) disposed opposite said slots and configured to be mounted in thermal contact with said one or more heat-generating components.

With respect to claim 20, Hughes et al. further teaches the heat sink having a substantially constant cross section shape (See Hughes Figs 1 and 2).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-14, 16-17, 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lo in view of Hughes et al. (US 5,883,784).

With respect to claim 16, Lo teaches the limitations of claim 15 as per above but is silent as to the circuit card comprising an edge portion in sliding association with said recess. Hughes et al. teaches a circuit card (80) comprising an edge portion (82) in sliding association with a recess (See Hughes Fig 6). It would have been obvious to

one of ordinary skill in the art at the time the invention was made to combine the teachings of Hughes with that of Lo to provide additional efficient heat transfer to another device (Col: 2, Lines 4-7).

With respect to claim 17, Lo teaches the limitations of claim 15 as per above but is silent as to a connector configured for electrically coupling said circuit card to a computer system, said recess of said heat sink being oriented to guide said circuit card for coupling said connector to said computer system. Hughes et al. further teaches a connector (78) configured for electrically coupling said circuit card to a computer system (Column 3, Lines 55-61), said recess (16) of said heat sink being oriented to guide said circuit card for coupling said connector to said computer system (Column 3, Lines 55-61). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Hughes et al. with that of Lo to provide additional efficient heat transfer to another device (Col: 2, Lines 4-7).

With respect to claims 10-14, 21-23, the method steps recited in the claims are inherently necessitated by the device structure as taught by the Lo and Hughes et al. references.

Response to Arguments

6. Applicant's arguments filed 4/26/2007 have been fully considered but they are not persuasive.

With respect to the Applicants' remarks to claim 1 that, "Hughes fails to disclose, teach, or suggest, "a face of the base disposed opposite said fins, said base being

configured to be mounted with said face abutting a heat-generating component", the Examiner respectfully disagrees. As clearly disclosed in both the previous rejection and the rejection above, Hughes clearly teaches a base (See POA Fig 2 above) with first and second faces (where the first face is adjacent 16 and the second face is adjacent 14) where the second face is **configured** to be mounted with a heat-generating component. The Examiner respectfully notes that the claim does not require that a heat generating component be mounted with said face abutting a heat-generating component, rather that the face be configured to be mounted with said face abutting a heat-generating component. As per above, Hughes clearly teaches such a limitation.

Applicant's remarks to claim 13 are moot in view of the new rejection (necessitated by Applicants' amendment) to claim 10.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

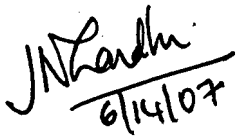
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachary M. Pape whose telephone number is 571-272-2201. The examiner can normally be reached on Mon. - Thur. (7:00am - 5:30pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayprakash Gandhi can be reached at 571-272-3740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ZMP


6/14/07
JAYPRAKASH GANDHI
SUPERVISOR/PATENT EXAMINER